

Amdt. dated May 30, 2006
Reply to Office action of February 27, 2006

Serial No. 10/786,845
Docket No. TUC920030107US1
Firm No. 0022.0053

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A method for transferring data using multiple backup components, comprising:
assigning responsibility for a portion of data to a first backup component; and
when a data update for the portion of data is received at the first backup component from a primary source, mirroring the data update to a second backup component that is not assigned responsibility for the portion of data, wherein each backup component is responsible for transferring data updates for a certain portion of data from one or more primary sources to one or more secondary sources and wherein each backup component has the ability to communicate with each other backup component over a communication path.

2. (Original) The method of claim 1, further comprising:
when the data update for the portion of data is received at the second backup component that is not assigned responsibility for the portion of data from the primary source, forwarding the data update to the first backup component.

3. (Currently Amended) ~~The method of claim 1, further comprising~~ A method for transferring data using multiple backup components, comprising :
assigning responsibility for a portion of data to a first backup component;
when a data update for the portion of data is received at the first backup component from a primary source, mirroring the data update to a second backup component that is not assigned responsibility for the portion of data, and
when the data update for the portion of data is received at the first backup component from the second backup component that is not responsible for the portion of data,
assigning a sequence number to the data update; and
acknowledging receipt of the data update by sending the sequence number to the second backup component.

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4. (Original) The method of claim 1, further comprising:
when the data update for the portion of data is received at the second backup component that is not responsible for the portion of data, storing the data update.
5. (Original) The method of claim 1, wherein the first backup component and the second backup component communicate over a first communication path and wherein the first backup component and second backup component communicate with the primary source over a second communication path.
6. (Original) The method of claim 1, wherein the first backup component, the second backup component, and the primary source communicate over one communication path.
7. (Original) The method of claim 1, further comprising:
wherein each of the multiple backup components maintains a mapping of which backup component is assigned to particular portions of data.
8. (Original) The method of claim 1, wherein when one of the multiple backup components mirrors the data update to another backup component, further comprising:
sending a sequence identifier with the mirrored data update; and
keeping track of which backup component was sent the data update.
9. (Original) The method of claim 1, wherein when one of the multiple backup components receives a mirrored data update from another backup component, further comprising:
receiving a sequence identifier with the mirrored data update; and
keeping track of which backup component sent the data update.
10. (Currently Amended) A method for processing data updates with a group of backup components, comprising:
determining that a new backup component is active;

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near an end of a consistent transactions set formation period, assigning responsibility for transferring data updates from one or more primary sources to one or more secondary sources for one or more portions of data to each backup component in the group and to the new backup component; and

during a next consistent transactions set formation period, processing data updates with each backup component in the group and the new backup component by transferring and mirroring the data updates.

11. (Original) The method of claim 10, wherein the new backup component becomes part of the group of backup components.

12. (Currently Amended) A method for processing data updates with a group of backup components, comprising:

determining that a first backup component in the group is no longer available; and
reassigning portions of data for which the first backup component had been assigned responsibility for transferring data updates from one or more primary sources to one or more secondary sources to each of the other backup components in the group.

13. (Original) The method of claim 12, wherein each of the backup components in the group that was mirroring data updates for the first backup component mirrors the data updates to the backup components that were assigned responsibility for the portions of data to which the data updates were made.

14. (Original) The method of claim 12, wherein each of the backup components that is reassigned a portion of data and that has data updates for the portion of data mirrors the data updates to another backup component.

15. (Original) The method of claim 12, wherein each of the backup components in the group that had mirrored data to the first backup component mirror data updates to another backup component.

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16. (Currently Amended) An article of manufacture comprising one of hardware logic and a computer readable medium including program logic code for transferring data using multiple backup components, wherein the program logic or code causes operations to be performed, the operations comprising:

assigning responsibility for a portion of data to a first backup component; and

when a data update for the portion of data is received at the first backup component from a primary source, mirroring the data update to a second backup component that is not assigned responsibility for the portion of data, wherein each backup component is responsible for transferring data updates for a certain portion of data from one or more primary sources to one or more secondary sources and wherein each backup component has the ability to communicate with each other backup component over a communication path.

17. (Original) The article of manufacture of claim 16, wherein the operations further comprise:

when the data update for the portion of data is received at the second backup component that is not assigned responsibility for the portion of data from the primary source, forwarding the data update to the first backup component.

18. (Currently Amended) ~~The article of manufacture of claim 16, wherein the operations further comprise~~ An article of manufacture comprising one of hardware logic and a computer readable medium including code for transferring data using multiple backup components, wherein the logic or code causes operations to be performed, the operations comprising :

assigning responsibility for a portion of data to a first backup component; and

when a data update for the portion of data is received at the first backup component from a primary source, mirroring the data update to a second backup component that is not assigned responsibility for the portion of data; and

when the data update for the portion of data is received at the first backup component from the second backup component that is not responsible for the portion of data,

assigning a sequence number to the data update; and

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acknowledging receipt of the data update by sending the sequence number to the second backup component.

19. (Original) The article of manufacture of claim 16, wherein the operations further comprise:

when the data update for the portion of data is received at the second backup component that is not responsible for the portion of data, storing the data update.

20. (Original) The article of manufacture of claim 16, wherein the first backup component and the second backup component communicate over a first communication path and wherein the first backup component and second backup component communicate with the primary source over a second communication path.

21. (Original) The article of manufacture of claim 16, wherein the first backup component, the second backup component, and the primary source communicate over one communication path.

22. (Original) The article of manufacture of claim 16, wherein the operations further comprise:

wherein each of the multiple backup components maintains a mapping of which backup component is assigned to particular portions of data.

23. (Original) The article of manufacture of claim 16, wherein when one of the multiple backup components mirrors the data update to another backup component, and wherein the operations further comprise:

sending a sequence identifier with the mirrored data update; and
keeping track of which backup component was sent the data update.

24. (Original) The article of manufacture of claim 16, wherein when one of the multiple backup components receives a mirrored data update from another backup component, and wherein the operations further comprise:

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receiving a sequence identifier with the mirrored data update; and
keeping track of which backup component sent the data update.

25. (Currently Amended) An article of manufacture comprising one of hardware logic and a computer readable medium including program logic code for processing data updates with a group of backup components, wherein the program logic or code causes operations to be performed, the operations comprising:

determining that a new backup component is active;

near an end of a consistent transactions set formation period, assigning responsibility for transferring data updates from one or more primary sources to one or more secondary sources for one or more portions of data to each backup component in the group and to the new backup component; and

during a next consistent transactions set formation period, processing data updates with each backup component in the group and the new backup component by transferring and mirroring the data updates.

26. (Original) The article of manufacture of claim 25, wherein the new backup component becomes part of the group of backup components.

27. (Currently Amended) An article of manufacture comprising one of hardware logic and a computer readable medium including program logic code for processing data updates with a group of backup components, wherein the program logic or code causes operations to be performed, the operations comprising:

determining that a first backup component in the group is no longer available; and

reassigning portions of data for which the first backup component had been assigned responsibility for transferring data updates from one or more primary sources to one or more secondary sources to each of the other backup components in the group.

28. (Original) The article of manufacture of claim 27, wherein each of the backup components in the group that was mirroring data updates for the first backup component mirrors

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the data updates to the backup components that were assigned responsibility for the portions of data to which the data updates were made.

29. (Original) The article of manufacture of claim 27, wherein each of the backup components that is reassigned a portion of data and that has data updates for the portion of data mirrors the data updates to another backup component.

30. (Original) The article of manufacture of claim 27, wherein each of the backup components in the group that had mirrored data to the first backup component mirror data updates to another backup component.

31. (Currently Amended) A system for transferring data using multiple backup components, comprising:

means for assigning responsibility for a portion of data to a first backup component; and
means for, when a data update for the portion of data is received at the first backup component from a primary source, mirroring the data update to a second backup component that is not assigned responsibility for the portion of data, wherein each backup component is responsible for transferring data updates for a certain portion of data from one or more primary sources to one or more secondary sources and wherein each backup component has the ability to communicate with each other backup component over a communication path.

32. (Original) The system of claim 31, further comprising:

means for, when the data update for the portion of data is received at the second backup component that is not assigned responsibility for the portion of data from the primary source, forwarding the data update to the first backup component.

33. (Currently Amended) ~~The system of claim 31, further comprising~~ A system for transferring data using multiple backup components, comprising :

means for assigning responsibility for a portion of data to a first backup component; and

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means for, when a data update for the portion of data is received at the first backup component from a primary source, mirroring the data update to a second backup component that is not assigned responsibility for the portion of data; and

when the data update for the portion of data is received at the first backup component from the second backup component that is not responsible for the portion of data,

means for assigning a sequence number to the data update; and

means for acknowledging receipt of the data update by sending the sequence number to the second backup component.

34. (Original) The system of claim 31, wherein when one of the multiple backup components mirrors the data update to another backup component, further comprising:

means for sending a sequence identifier with the mirrored data update; and

means for keeping track of which backup component was sent the data update.

35. (Original) The system of claim 31, wherein when one of the multiple backup components receives a mirrored data update from another backup component, further comprising:

means for receiving a sequence identifier with the mirrored data update; and

means for keeping track of which backup component sent the data update.

36. (Currently Amended) A system for processing data updates with a group of backup components, comprising:

means for determining that a new backup component is active;

means for, near an end of a consistent transactions set formation period, assigning responsibility for transferring data updates from one or more primary sources to one or more secondary sources for one or more portions of data to each backup component in the group and to the new backup component; and

means for during a next consistent transactions set formation period, processing data updates with each backup component in the group and the new backup component by transferring and mirroring the data updates.

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37. (Original) The system of claim 36, wherein the new backup component becomes part of the group of backup components.

38. (Currently Amended) A system of processing data updates with a group of backup components, comprising:

means for determining that a first backup component in the group is no longer available;
and

means for reassigning portions of data for which the first backup component had been assigned responsibility for transferring data updates from one or more primary sources to one or more secondary sources to each of the other backup components in the group.

39. (Original) The system of claim 38, wherein each of the backup components in the group that was mirroring data updates for the first backup component mirrors the data updates to the backup components that were assigned responsibility for the portions of data to which the data updates were made.

40. (Original) The system of claim 38, wherein each of the backup components that is reassigned a portion of data and that has data updates for the portion of data mirrors the data updates to another backup component.

41. (Original) The system of claim 38, wherein each of the backup components in the group that had mirrored data to the first backup component mirror data updates to another backup component.